

# Ammonium persulfate

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**Ammonium persulfate** (NH<sub>4</sub>)<sub>2</sub>S<sub>2</sub>O<sub>8</sub> is a strong oxidizing agent. It is very soluble in water; the dissolution of the salt in water is endothermic. It is a radical initiator. It is used to etch copper on printed circuit boards as an alternative to ferric chloride solution.<sup>[1]</sup> It is also used along with tetramethylethylenediamine to catalyze the polymerization of acrylamide in making a polyacrylamide gel.

Ammonium persulfate was prepared by H. Marshall by the method used for the preparation of potassium persulfate — by the electrolysis of a solution of ammonium sulfate and sulfuric acid.<sup>[2]</sup>

Ammonium persulfate is the main component of Nochromix. On dissolving in sulfuric acid, it is used to clean laboratory glassware as a metal-free alternative to chromic acid baths.<sup>[3]</sup> It is also a standard ingredient in western blot gels and hair bleach.

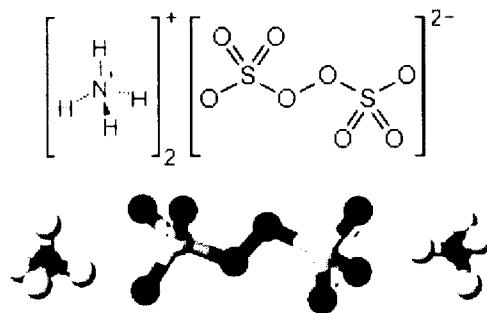
## Safety

Airborne dust may be irritating to eye, nose, throat, lung and skin upon contact. Exposure to high levels of dust may cause difficulty in breathing.<sup>[4]</sup>

## References

- ↑ "Ammonium Persulphate: Copper Etchant"

### Ammonium persulfate



#### Other names

Ammonium peroxydisulfate

#### Identifiers

CAS number 7727-54-0 ✓

ChemSpider 56400 ✓

UNII 22QF6L357F ✓

EC number 231-786-5

UN number 1444

RTECS SE0350000 number

#### SMILES

O=S(=O)([O-])OOS([O-])(=O)=O.[NH4+].[NH4+]

[NH4+].[NH4+].[O-]S(=O)(=O)OOS(=O)(=O)[O-]

#### InChI

InChI=1S/2H3N.H2O8S2/c;;1-9(2,3)7-8-10(4,5)6/h2\*1H3;(H,1,2,3)(H,4,5,6) ✓

Key: ROOXNKNUYICQNP-UHFFFAOYSA-N ✓

InChI=1/2H3N.H2O8S2/c;;1-9(2,3)7-8-10(4,5)6/h2\*1H3;(H,1,2,3)(H,4,5,6)

Key: ROOXNKNUYICQNP-UHFFFAOYAL

#### Properties

Molecular formula (NH<sub>4</sub>)<sub>2</sub>S<sub>2</sub>O<sub>8</sub>

Molar mass 228.18 g/mol

Appearance white to yellowish crystals

Density	1.98 g/cm <sup>3</sup>
Melting point	120 °C (393 K) decomp.
Solubility in water	80 g/100 ml (25 °C)

**Hazards**

MSDS	External MSDS ( <a href="http://www.jtbaker.com/msds/englishhtml/a6096.htm">http://www.jtbaker.com/msds/englishhtml/a6096.htm</a> )
EU Index	016-060-00-6
EU classification	Oxidant ( <b>O</b> ) Harmful ( <b>Xn</b> ) Irritant ( <b>Xi</b> )
R-phrases	<u>R8</u> , <u>R22</u> , <u>R36/37/38</u> , <u>R42/43</u>
S-phrases	<u>(S2)</u> , <u>S22</u> , <u>S24</u> , <u>S26</u> , <u>S37</u>
NFPA 704	



LD <sub>50</sub>	689 mg/kg, oral (rat)
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**Related compounds**

Other anions	Ammonium thiosulfate Ammonium sulfite Ammonium sulfate
Other cations	Sodium persulfate Potassium persulfate

✓(what is this?) (verify)

Except where noted otherwise, data are given for materials in their standard state (at 25 °C, 100 kPa)

Infobox references

(<http://www.mgchemicals.com/products/410.html>) . MG Chemicals.  
<http://www.mgchemicals.com/products/410.html>.

2. ^ Hugh Marshall (1891). "LXXIV. Contributions from the Chemical Laboratory of the University of Edinburgh. No. V. The persulphates". *J. Chem. Soc., Trans.* **59**: 771. doi:10.1039/CT8915900771 (<http://dx.doi.org/10.1039%2FCT8915900771>) .
3. ^ "Nochromix" (<http://www.sigmaaldrich.com/catalog/search/SpecificationSheetPage/ALDRICH/328693>) . Sigma-Aldrich. <http://www.sigmaaldrich.com/catalog/search/SpecificationSheetPage/ALDRICH/328693>. Retrieved 2008-03-01.
4. ^ [1] ([http://msds.fmc.com/msds/100000010587-MSDS\\_US-E.pdf](http://msds.fmc.com/msds/100000010587-MSDS_US-E.pdf)) FMC Corporation, MSDS sheet dated: 06/26/2009

**External links**

- International Chemical Safety Card 0632  
([http://www.ilo.org/public/english/protection/safework/cis/products/icsc/dtasht/\\_icsc06/icsc0632.htm](http://www.ilo.org/public/english/protection/safework/cis/products/icsc/dtasht/_icsc06/icsc0632.htm))

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